

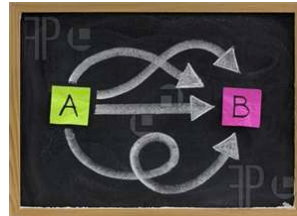
## Writing Linear Equations & Linear Systems

### 3.1 Lesson: Writing Equations in Slope-Intercept Form

Unit Question: How can multiple representations lead to the same conclusion?

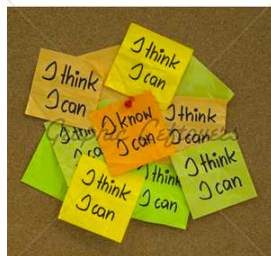
Learner Profile: Open-Minded

Area of Interaction: Human Ingenuity



## I Can Statement:

I can write an equation of a line when given the slope and y-intercept.



Write an equation of the line in slope-intercept form.

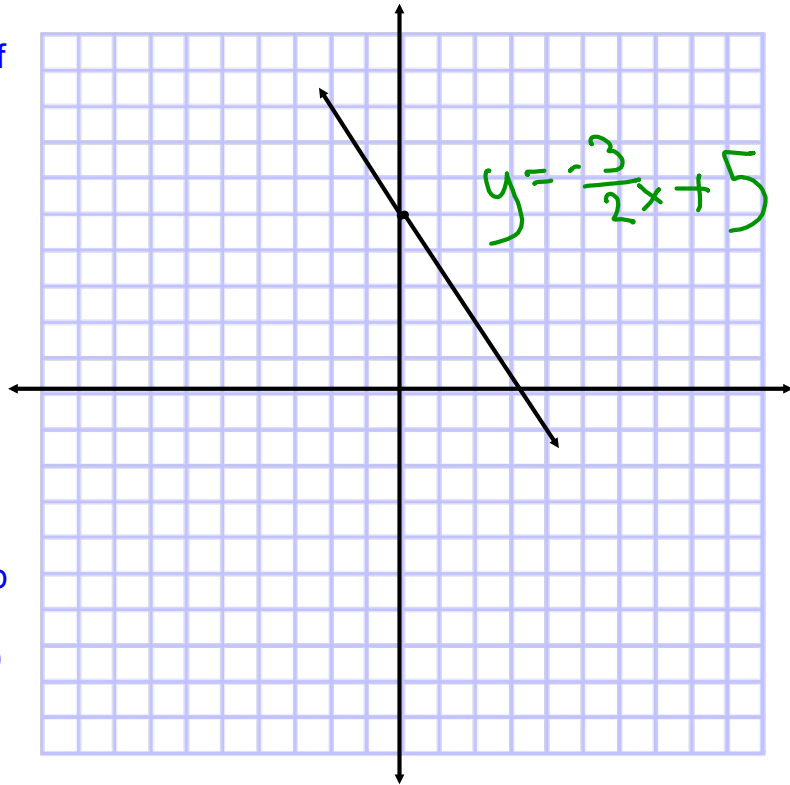
1st: Find the slope (rise/run)

$$m = -\frac{3}{2}$$

2nd: Find the y-int (where the line crosses the y-axis)

$$b = 5$$

3rd: Use  $y = mx + b$  (where  $m$  is the slope and  $b$  is y-int.)



Write an equation of the line in slope-intercept form.

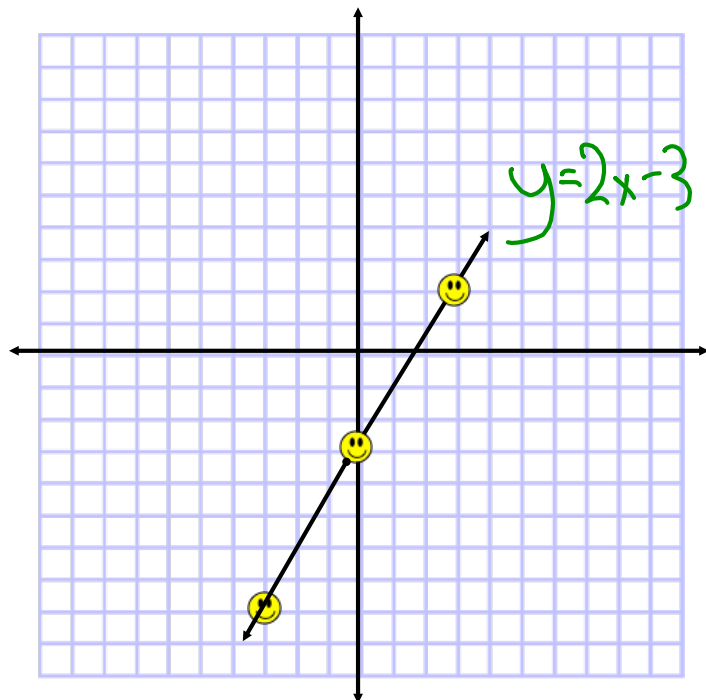
1st: Find the slope (rise/run)

$$m = 2$$

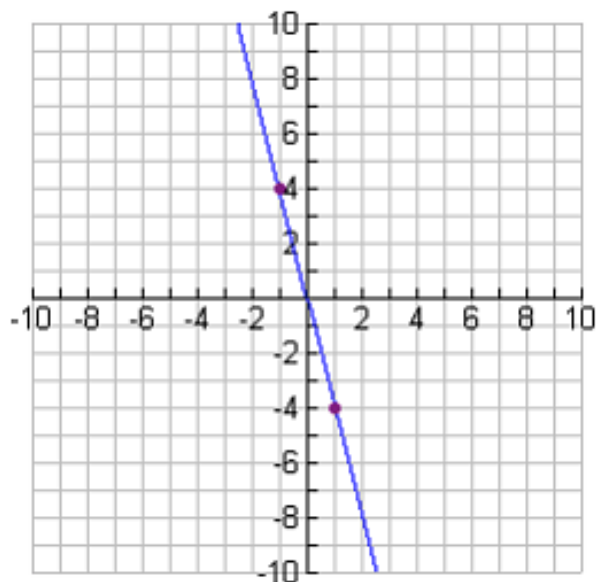
2nd: Find the y-int (where the line crosses the y-axis)

$$b = -3$$

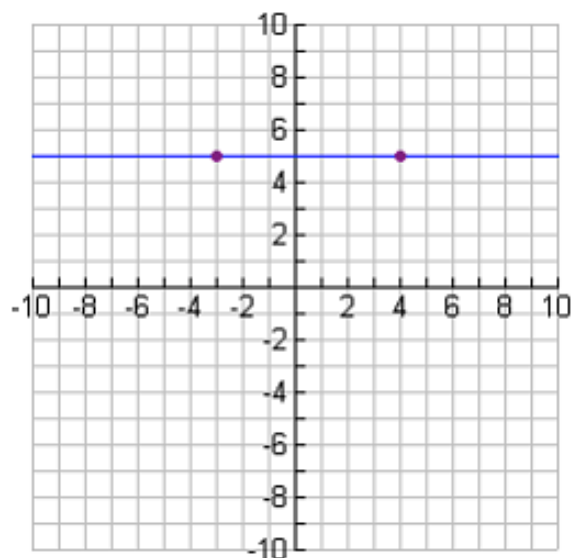
3rd: Use  $y = mx + b$  (where  $m$  is the slope and  $b$  is y-int.)



Write the equation of the line in slope-intercept form.



Write the equation of the line in slope-intercept form.



What is the difference between a slope of  $0/3$  and a slope of  $3/0$ ?



undefined  
GIVEN  
3/0  
3/0

If you were to graph the 2 slopes what would they look like?

Write an equation of a line given the following 2 points:

Example 1:  $(0, -1)$  and  $(4, -1)$

$\frac{-1 - (-1)}{4 - 0} = \frac{0}{4} = 0$  slope

$y = 0(x) + b$

$-1 = b$

$y = -1$

Example 2:  $(-3, 0)$  and  $(0, 0)$

$m = 0$

$$0 = 0(0) + b$$

$$0 = b$$

$$y = 0$$

$$\begin{array}{lcl}
 (4, 3) & (2, 6) & \\
 \frac{3-6}{4-2} & \frac{-3}{2} & y = -\frac{3}{2}x + b \\
 y = -\frac{3}{2}x + 9 & 6 = -\frac{3}{2}(2) + b & \\
 & 6 = -\frac{6}{2} + b & \\
 & 6 = -3 + b & \\
 & b = 9 & 
 \end{array}$$

## Real-Life Application (page 109 in textbook)

The graph on page 109 shows the distance remaining to complete a tunnel. Notice that we can find at least 2 points on the graph that represent (time in months, distance.) Two points are (0,3500) and (4,1500)

(a) Write an equation that represents the distance  $y$  (in feet) remaining after  $x$  months.  $y = -500x + 3500$

Find the slope and y-intercept and put in slope-intercept form.

(b) How much time does it take to complete the tunnel?

When will we know if the tunnel is finished?

# Assignment:

Textbook p.110-111      5-18